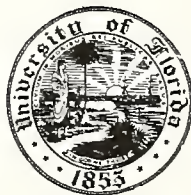


Hornblower & Weeks Research Department

Population Study and Age Group  
Evaluation for Industry Growth.

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**POPULATION STUDY  
AND AGE GROUP EVALUATION  
FOR INDUSTRY GROWTH**



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**POPULATION STUDY  
AND AGE GROUP EVALUATION  
FOR INDUSTRY GROWTH**



# POPULATION STUDY AND AGE GROUP EVALUATION FOR INDUSTRY GROWTH

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## INTRODUCTION

Ever since the first U. S. Census was taken in 1790, knowledge of the size, composition and changes in the population of the United States has been officially recognized as essential to economic and financial planning and industrial development. Population is the basic determinant of both the supply of labor and the total demand for all economic goods and services.

Population projections, by themselves, do little more than indicate the general directions in which business developments can be expected. For example, population growth without a definite increase in levels of consumption and standards of living would have as little impact upon our economy as the population explosion has had upon the Asian and African economies. However, all things being equal, increasing population means more customers, which, in turn, means more business and industrial change.

This study will evaluate the population changes that can be expected during the next decade. Emphasis will be placed not only on the total population size but also on the age composition and rates of change. Information about these three variables (size, composition and change) will be used to indicate trends which may be expected in the nation's economic growth process. It is hoped that this research project will be a constructive aid in the continuous search for favorable investment opportunities.

## METHOD

Changes in population result from three factors -- births, deaths and net immigration. The following projections require an analysis of all three factors based on specific assumptions. This is done in detail in Appendix I. In brief, the assumptions are that net immigration will be approximately +300,000 per year, that mortality rates will show a slight decline and that the birth rates of the recent past will continue throughout the next decade. Numerical estimates are then made using these assumptions and elementary mathematical formulas.


## GENERAL FINDINGS

This section will draw attention to some of the major changes which the projections indicate can be expected in our population during the next decade. It also will show how the charts and tables can be used to obtain quickly the type of information which is important in considering the population's impact on industrial change. Throughout the following discussion, it should be remembered that projections are not predictions, they are merely population models which show what the population will be if the nation experiences the levels of fertility, mortality and migration which have been assumed.

Table I, page 9, shows that the total population in the next decade can be expected to increase by 33.7 million persons, or 19% over the 1960 total of 180,116,000. This total is divided into eighteen age groups and the number of people that can be expected to appear in each group is recorded. By following these figures, year by year, it can be seen that the absolute population will increase in some age classifications and will decrease in others. The other columns on Table 1 indicate the percent of the total population which falls into each age group. By following these figures, for each year, structural changes in the population become clear. Some groups will grow, relative to other groups, and some will diminish. Charts A1 through C2, pages 6 to 8, reflect both the absolute and the percentage change in each age group.

Table II, page 12, presents a concise view of the total population from 1900 to 1970. Not only are totals recorded for each year but also the absolute change and the percentage of increase or decrease that takes place.





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Table III, page 13, describes numerically the information that is on Charts C1 and C2. The most general characteristics which can be expected during the next decade are now apparent, as follows -

- A. During the next decade, the population can be expected to grow at a rate of about 1.65% per year.
- B. The proportion of people in the younger age groups will show a substantial rise both in absolute terms and in relation to the rest of the population.
- C. Population in the "middle years" shows a relative and in some cases an absolute decline.
- D. There will be a rather marked increase of older citizens.

### **DETAILED FINDINGS**

A more detailed examination of the statistics now can be made. Once again, the discussion will direct itself to some of the more important issues in order to show how the tables and charts can be used.

The figures on Table I indicate that the infants and pre-school children which make up the category under 5 will increase at the rate of approximately 250,000 per year until 1965 and 580,000 per year thereafter until 1970. This represents a 6% increase from 1960 to 1965 and a 21% increase from 1960 to 1970 (refer to Charts A1 through C2).

The number of children who will be entering elementary school, (ages 5 to 9), will show a substantial increase during each of the next several years as the births which took place between 1953 and 1957 enter this group. Chart B1, for example, shows a 5.2% increase in this category during the first three years of this decade alone. This represents a growth of slightly less than one million people.

For the population above ten years old, the future size can be projected to 1970 with a much greater degree of confidence. This group, obviously, will not be affected by new births and the need to project fertility rates is eliminated. The population from ten to nineteen, which encompasses the junior and senior high school ages, is destined to show a dramatic increase during the next decade. The increment in this 10-19 group (over 6 million by 1965 and over 9.5 million by 1970) is largely attributable to the unprecedented number of births that occurred from 1943 to 1947. The 15-19 year old category alone is expected to increase by 44%.

In the "younger" categories, the largest rate of increase in the entire population during the next ten years will be found in the 20 to 24 year old group. This important classification includes those attending college and the bulk of new recruits into the labor force. It is also the age range within which most new families are formed. Charts A1 through C2 reflect the large yearly increases which can be expected to enlarge the 20 to 24 year old category (11.3 to 17.3 million) during the next decade.

For subsequent examination of the economic needs of school aged people, a breakdown by academic classifications may prove to be more relevant than five-year age groupings. Table IV, page 13, does this by projecting the number of people by age classifications, selected to represent approximately the elementary school (5 to 13), high school (14 to 17) and college (18 to 21) ages.

The population segment which constitutes the main body of working ages (25 to 64) will grow from approximately 73 million to about 97 million (33%), but an examination of individual groups reveals that the increase is not uniform at all age levels. Although the 25 to 29 year old group will increase by 5% in the next five years (refer to Chart C1), its main increments will develop after 1965. Its growth of 5%, however, is substantially below the increase that was observed in the 20 to 24 year category (19%) or in the 15 to 19 year old group (29%) for the five year period because it does not yet reflect the "baby boom" of 1943-1947.



Each year of the next decade can be expected to bring a net decline in the combined age groups of 30 to 39, both in absolute numbers and in relation to the rest of the population. This will have a depressing effect (which may or may not be offset by other factors) on the demand for economic goods and services that is characteristic of this group.

The age group of 40 to 44 can be expected to increase 7% from 1960 to 1965. From 1965 to 1970 this rate of growth will diminish as the smaller numbers from the 35 to 39 year olds move into the 40 to 44 year category. This reduction, however, should not be overemphasized as it is less than 1% per year and is not likely to have an appreciable impact on industrial demand.

It is possible than any subdivision in the groups from 50 to 65 years is unnecessary. During the next decade the entire category can be expected to act in a manner that is quite uniform. It will show a moderate growth throughout this period. When translated into absolute numbers, however, this moderate rate of increase has important implications for changes in the demand for industrial production. In the ages 50 to 65 the total increment in the '60s is anticipated to be over 4.6 million (about the current population of Florida).

The people over 65, usually considered as being the retirement age group, show different characteristics in the population projections to 1970. The groups from 65 to 80 continue to show moderate increases. But, because of the small base in 1960, this growth represents less than two million additional people.

The population over 80 years old can be expected to have a very rapid rate of increase, almost comparable to the rate of growth in the 20 to 24 year old category. The important distinction, however, is not found in the rate of increase but rather in the absolute numbers. As Table I indicates, in the classification of 85 and over there are less than a one million people while in the 20 to 24 year old category there are more than 11 million people. Although the rate of increase is of prime concern in evaluating possible changes in industrial capacity, the absolute figures must be kept in mind in order to properly evaluate the magnitude of the impact.

## SUMMARY

This section has pointed to some of the major developments that can be expected in our nation's population during the next decade. Irregular changes appear in the numbers which annually will reach various age groups in the future and these expected patterns have been illustrated with tables, charts and commentary. More significantly, it has indicated how the charts and tables can be used to obtain the type of information which might be valuable in answering questions concerning the population projections and their implications for the '60s.

A brief summary reveals that the greatest rate of growth in the next three, five and ten years (using 1960 as the base year) can be expected in the following groups --

	<u>Three Years</u>	<u>Five Years</u>	<u>Ten Years</u>
15 to 19	+17%	+29%	+44%
85 and over	+13%	+22%	+52%
80 to 84	+13%	+21%	+35%
20 to 24	+12%	+20%	+53%

These age groups show a net decline --

	<u>Three Years</u>	<u>Five Years</u>	<u>Ten Years</u>
35 to 39	-3%	-4%	-11%
30 to 34	-5%	-7%	-2%



and the age groups which will show the largest absolute increment are --

	(In Millions)		
	<u>Three Years</u>	<u>Five Years</u>	<u>Ten Years</u>
15 to 19	+2.3	+3.8	+5.8
20 to 24	+1.3	+2.2	+6.0
10 to 14	+1.2	+1.6	+3.6
5 to 9	+1.0	+1.7	+2.9

It can be seen that the population of the United States will get both younger and older with a decline in the "middle" years.

### INDUSTRIES SELECTED FOR FURTHER EXAMINATION

The purpose of this study is to direct attention to those segments of the population in which unusual growth or decline reasonably can be expected. In examining one side of the coin, it is apparent that these anticipated population changes can have a significant impact on the demand for the goods and services produced by certain industries. Other influences such as the amount of spendable income, relative prices of available goods and the buying habits of the consumer also must be evaluated. Also, in order to determine which specific companies might represent good investment values, the supply side of the coin must be considered. Can a selected industry or company supply what the changing population will demand? The answer to this question requires an evaluation of the firm's record, its management, its resources, its policies, its sales and administrative techniques, its cost structure and all the other components that make for a successful, or unsuccessful, business enterprise. An examination of this type is beyond the intent of this project.

However, certain general observations can be made at this point. For example, if attention is turned to those groupings in which the greatest population increases are anticipated, the industries which primarily serve those ages can be expected to experience an increase in the demand for their products. The fastest growing groups, which include ages 15 to 24, are expected to show an increase of 11.9 million people and experience a growth rate of 45% during the Sixties. Even if the projections, or the Census count, are incorrect by as much as one percent, the significance of the unusually large population increases in the 15 to 24 year old category would remain.

A selected list of industries which have experienced a significantly large proportion of their sales for use by people in the 15 to 24 year old age groups include --

School Supplies, School Equipment, Textbooks and Teaching Machines

Recreation, including Photography

Soft Drink, Beer & Cigarettes

Household Formation including furnishing and other necessities

Installment Financing

Apparel (from companies which deal in clothes designed for the younger men and women)

Cosmetics and Grooming

For investment purposes, certain companies within each industry obviously would appear to be more affected than others. Other industries also may be relevant and no doubt further investigations will enlarge the above list. This type of investigation and selectivity, however, is not the purpose of this preliminary report.



It is hoped that this detailed analysis of projected population trends and population age groups will be useful to you as a tool in the continuous attempt to evaluate a term which is often used but rarely defined -- "anticipated population growth".

AT: AUGUST 1961

HORNBLOWER & WEEKS  
RESEARCH DEPARTMENT





CHART A1 - ABSOLUTE AND PERCENTAGE CHANGE BY AGE GROUPS 1960 TO 1961

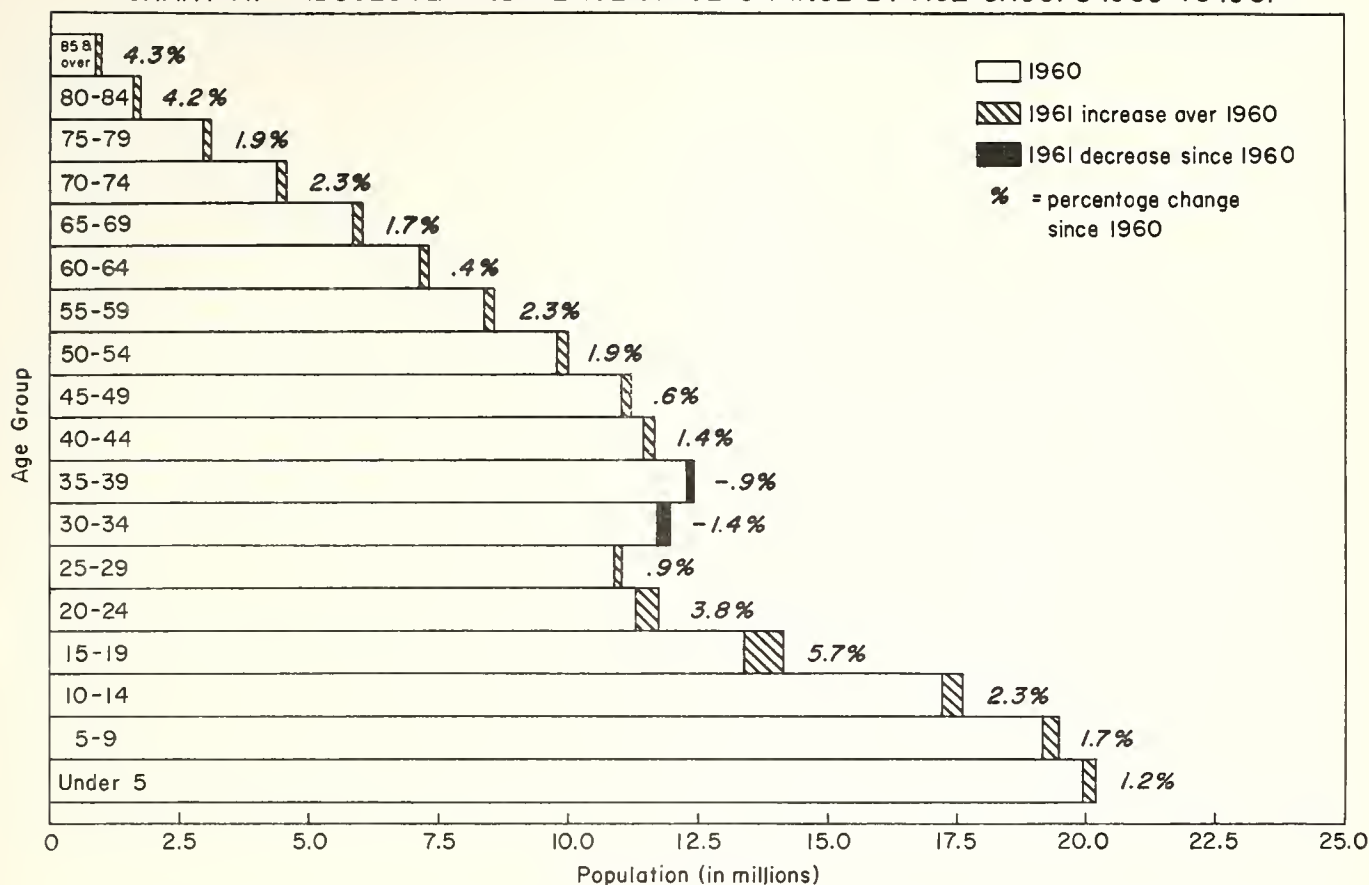


CHART A2 - ABSOLUTE AND PERCENTAGE CHANGE BY AGE GROUPS 1960 TO 1962

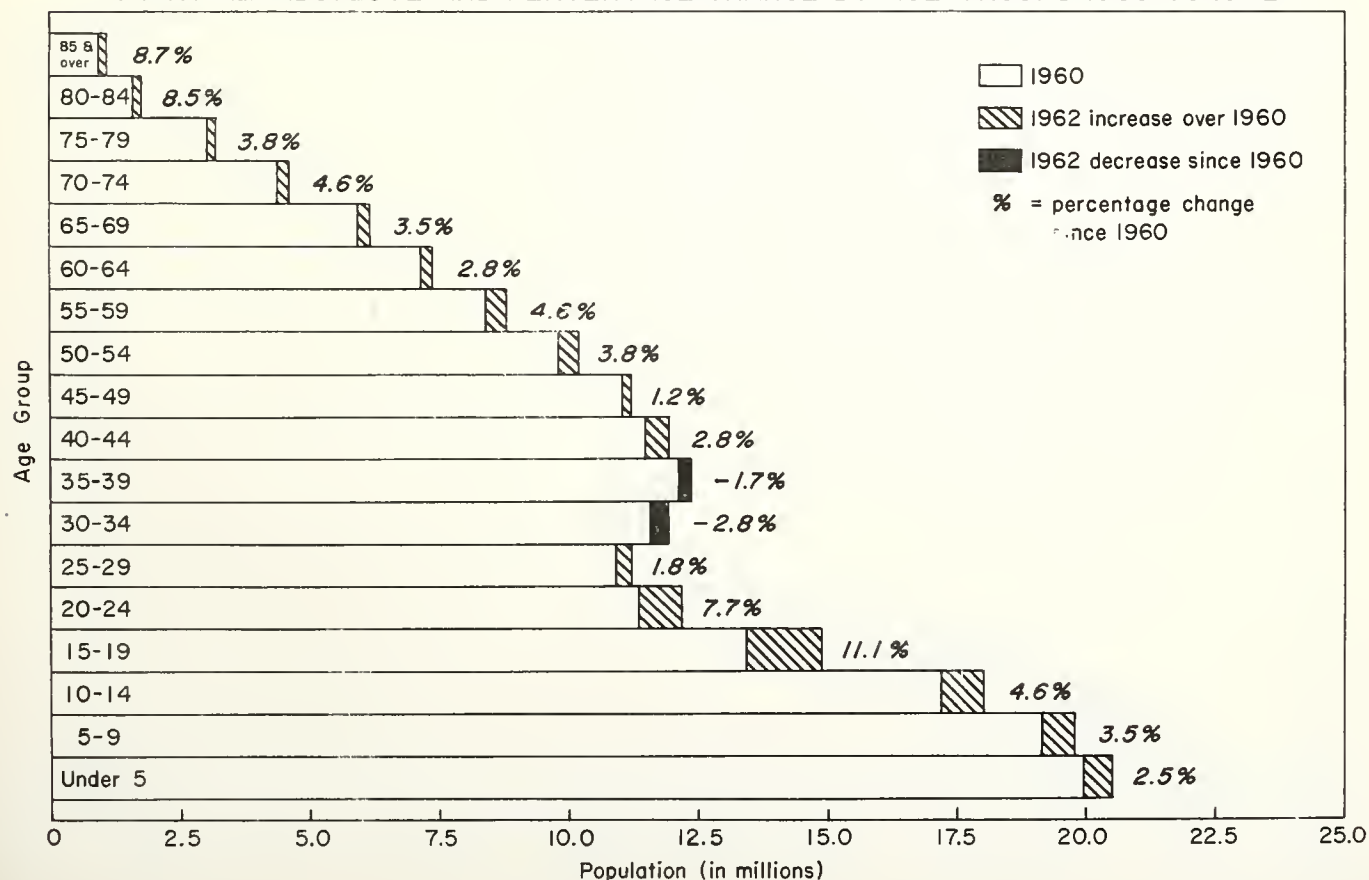




CHART B1- ABSOLUTE AND PERCENTAGE CHANGE BY AGE GROUPS 1960 TO 1963

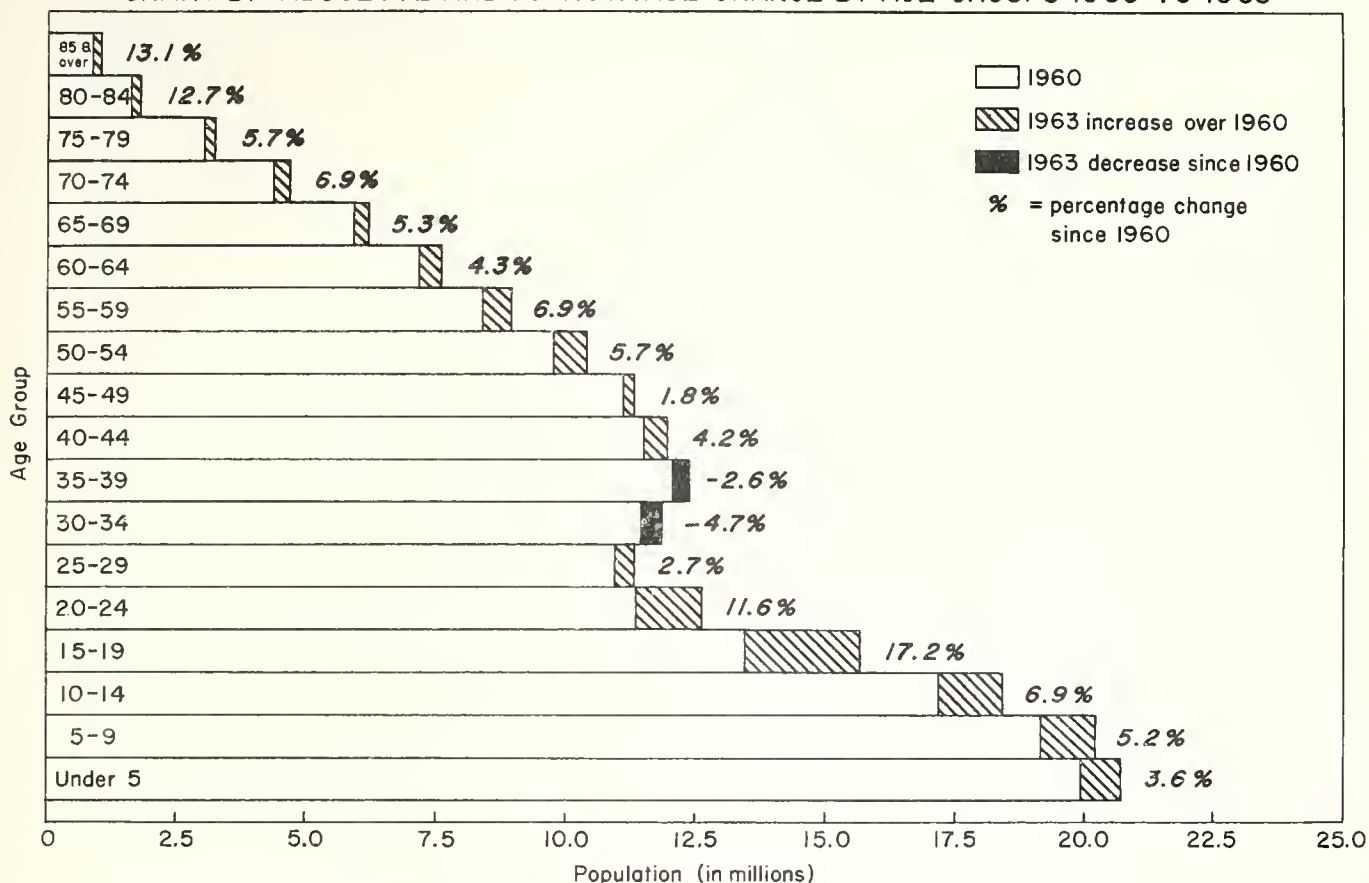


CHART B2- ABSOLUTE AND PERCENTAGE CHANGE BY AGE GROUPS 1960 TO 1964

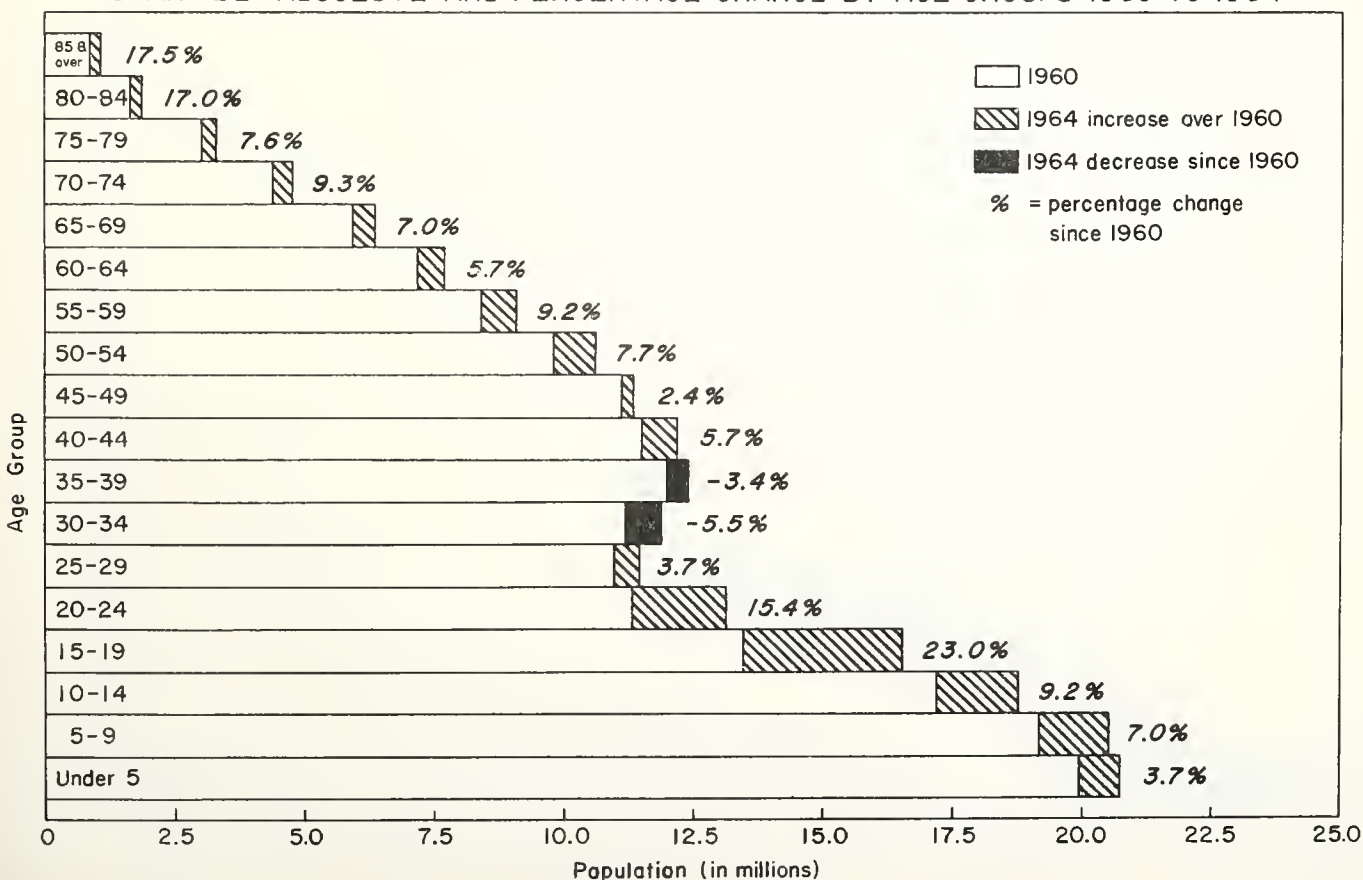




CHART C1- ABSOLUTE AND PERCENTAGE CHANGE BY AGE GROUPS 1960 TO 1965

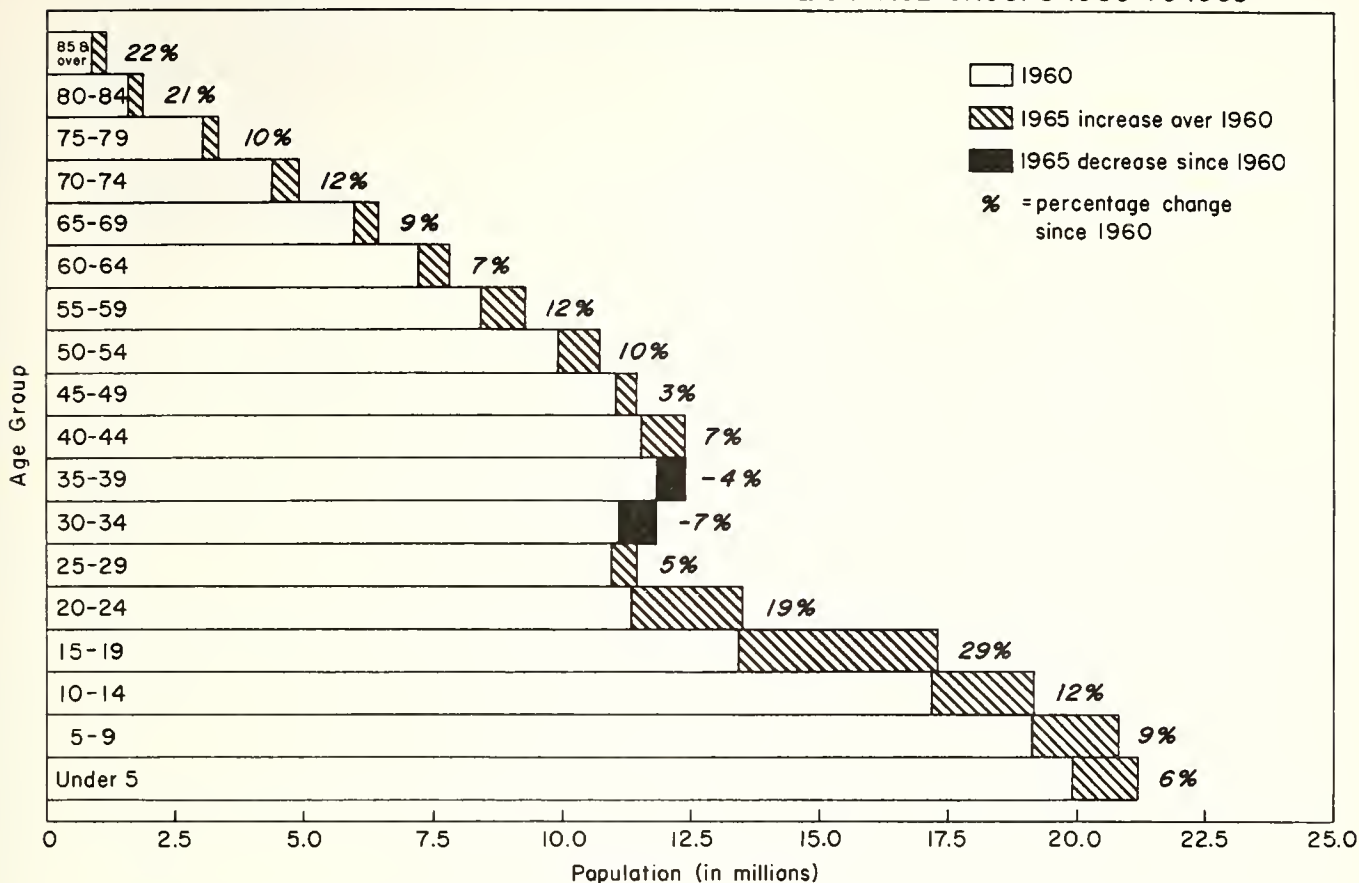
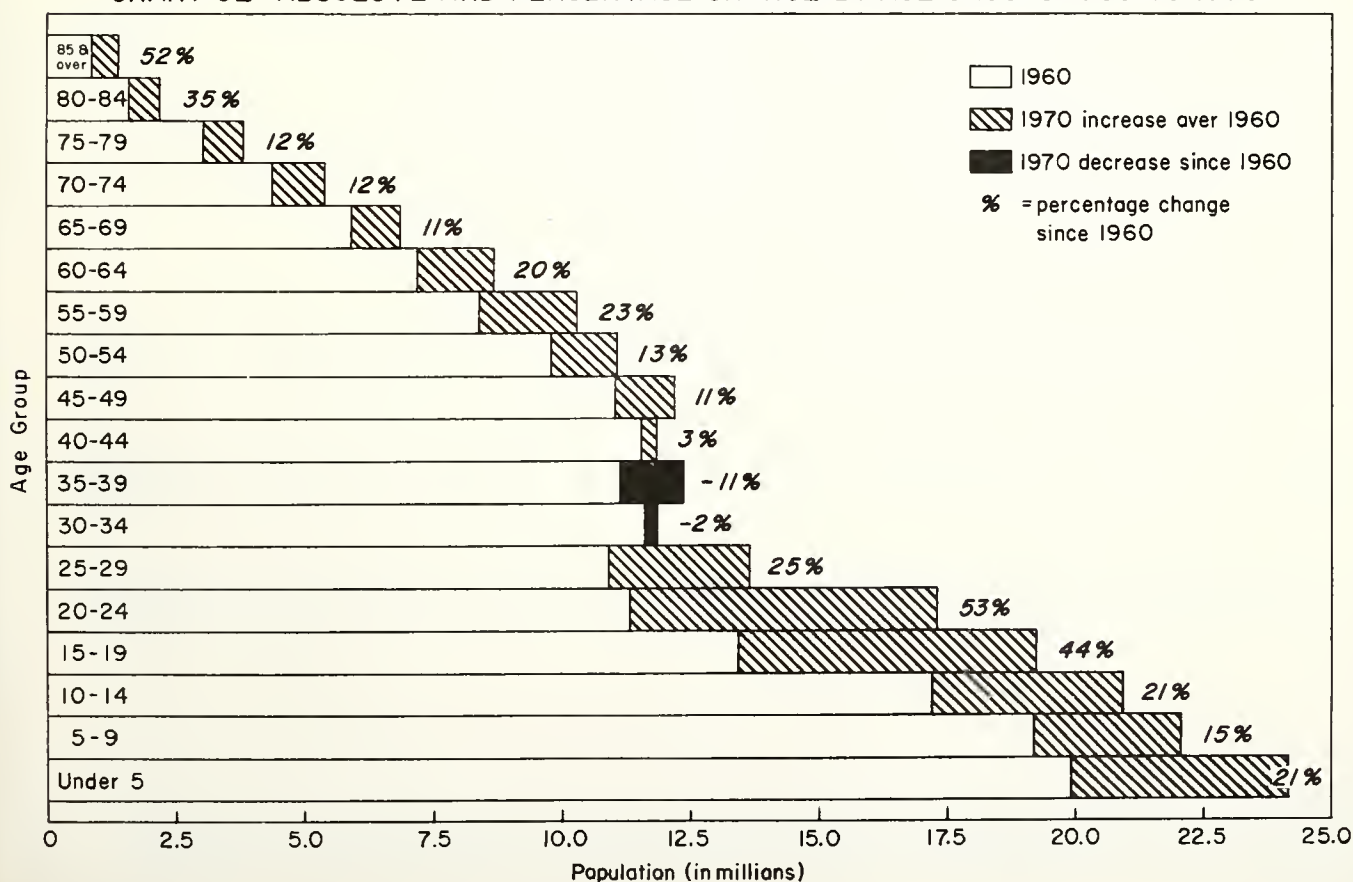


CHART C2- ABSOLUTE AND PERCENTAGE CHANGE BY AGE GROUPS 1960 TO 1970







ABSOLUTE POPULATION 1960 to 1970 BY (1) AGE GROUP IN THOUSANDS (000) (2) PERCENTAGE CHANGE IN EACH GROUP  
(3) CUMULATIVE PERCENTAGE IN EACH GROUP

	1960			1961			1962			1963		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
TOTAL	180,116	100%	100%	182,750	100%	100%	186,734	100%	100%	189,498	100%	100%
under 5	19,991	11.09	11.09	20,241	11.07	11.07	20,491	10.97	10.97	20,741	10.95	10.95
5-9	19,159	10.63	21.72	19,495	10.66	21.73	19,831	10.62	21.59	20,167	10.64	21.59
10-14	17,217	9.55	31.27	17,617	9.64	31.37	18,017	9.65	31.24	18,417	9.72	31.31
15-19	13,406	7.44	38.71	14,178	7.76	39.13	14,905	8.01	39.25	15,722	8.30	39.61
20-24	11,311	6.27	44.98	11,749	6.43	45.56	12,187	6.53	45.78	12,625	6.66	46.27
25-29	10,946	6.08	51.06	11,049	6.05	51.61	11,152	5.97	51.75	11,255	5.94	52.21
30-34	11,878	6.59	57.65	11,716	6.41	58.02	11,554	6.19	57.94	11,392	6.01	58.22
35-39	12,434	6.90	64.55	12,330	6.75	64.77	12,226	6.55	64.49	12,122	6.40	64.62
40-44	11,549	6.41	70.96	11,714	6.41	71.18	11,879	6.36	70.85	12,044	6.36	70.98
45-49	11,050	6.13	77.09	11,118	6.08	77.26	11,186	5.99	76.84	11,254	5.94	76.92
50-54	9,796	5.44	82.53	9,985	5.46	82.72	10,174	5.45	82.29	10,363	5.47	82.39
55-59	8,372	4.65	87.18	8,566	4.69	87.41	8,760	4.69	86.98	8,954	4.73	87.12
60-64	7,238	4.02	91.20	7,342	4.02	91.43	7,446	3.99	90.97	7,550	3.98	91.10
65-69	5,877	3.26	94.46	5,981	3.27	94.70	6,085	3.26	94.23	6,189	3.27	94.37
70-74	4,383	2.43	96.89	4,485	2.45	97.15	4,589	2.46	96.69	4,689	2.47	96.84
75-79	3,035	1.69	98.58	3,093	1.69	98.84	3,151	1.69	98.38	3,209	1.67	98.53
80-84	1,597	.89	99.47	1,665	.91	99.75	1,733	.93	99.31	1,801	.95	99.48
85 + over	887	.49	99.96	926	.51	100.26	965	.52	99.83	1,004	.53	100.01
Error due to rounding			(+.04)			(- .26)			(+.17)			(- .01)



TABLE 1 (con't)

	1964			1965			1966			1967		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	192,595	100%	100%	195,747	100%	100%	199,210	100%	100%	202,673	100%	100%
TOTAL												
under 5	20,741	10.90	10.90	21,243	10.85	10.85	21,832	10.96	10.96	22,421	11.06	11.06
5-9	20,503	10.65	21.55	20,837	10.64	21.49	21,087	10.51	21.47	21,327	10.38	21.44
10-14	18,817	9.77	31.32	19,216	9.82	31.31	19,551	9.81	31.28	19,886	9.81	31.25
15-19	16,494	8.56	39.88	17,267	8.82	40.13	17,666	8.87	40.15	18,065	8.91	40.16
20-24	13,063	6.78	46.66	13,502	6.90	47.03	14,270	7.16	47.31	15,083	7.42	47.58
25-29	11,358	5.90	52.56	11,459	5.85	52.88	11,895	5.97	53.28	12,331	6.08	53.66
30-34	11,230	5.83	58.39	11,068	5.65	58.53	11,171	5.61	58.89	11,274	5.56	59.22
35-39	12,018	6.24	64.63	11,914	6.09	64.62	11,755	5.90	64.79	11,596	5.72	64.94
40-44	12,209	6.34	70.97	12,374	6.32	70.94	12,274	6.16	70.95	12,174	6.01	70.95
45-49	11,322	5.88	76.85	11,389	5.82	76.76	11,554	5.79	76.74	11,719	5.78	76.73
50-54	10,552	5.48	82.33	10,741	5.49	82.25	10,811	5.43	82.17	10,881	5.37	82.10
55-59	9,148	4.75	87.08	9,340	4.77	87.02	9,536	4.78	86.95	9,712	4.79	86.89
60-64	7,654	3.97	91.05	7,759	3.96	90.98	7,946	3.99	90.94	8,133	4.01	90.90
65-69	6,293	3.27	94.32	6,395	3.27	94.25	6,496	3.26	94.20	6,597	3.25	94.15
70-74	4,791	2.49	96.81	4,892	2.50	96.75	4,989	2.50	96.70	5,086	2.51	96.66
75-79	3,267	1.70	98.51	3,327	1.70	98.45	3,414	1.71	98.41	3,501	1.73	98.39
80-84	1,869	.97	99.48	1,940	.99	99.44	1,984	1.00	99.41	2,028	1.01	99.40
85 + over	1,043	.54	100.02	1,084	.55	99.99	1,137	.57	99.98	1,190	.59	99.99
Error due to rounding			(-.02)			(+.01)			(+.02)			(+.01)



TABLE 1 (con't)

	1968			1969			1970		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
TOTAL	206,136	100 %	100 %	209,609	100 %	100 %	213,810	100 %	100 %
under 5	23,010	11.16	11.16	23,590	11.26	11.26	24,190	11.31	11.31
5-9	21,577	10.26	21.42	21,827	10.14	21.40	22,089	10.33	21.64
10-14	20,221	9.81	31.23	20,556	9.81	31.21	20,893	9.77	31.41
15-19	18,464	8.96	40.19	18,863	9.00	40.21	19,262	9.01	40.42
20-24	15,806	7.67	47.86	16,574	7.91	48.12	17,343	8.11	48.53
25-29	12,767	6.19	54.05	13,203	6.30	54.42	13,640	6.38	54.91
30-34	11,377	5.52	59.57	11,480	5.48	59.90	11,582	5.42	60.33
35-39	11,437	5.55	65.12	11,278	5.38	65.28	11,118	5.20	65.53
40-44	12,074	5.86	70.98	11,974	5.71	70.99	11,872	5.55	71.08
45-49	11,884	5.77	76.75	12,049	5.75	76.74	12,214	5.71	76.79
50-54	10,951	5.31	82.06	11,021	5.26	82.00	11,092	5.19	81.98
55-59	9,898	4.80	86.86	10,084	4.81	86.81	10,271	4.80	86.78
60-64	8,320	4.04	90.90	8,507	4.06	90.87	8,695	4.07	90.85
65-69	6,698	3.25	94.15	6,799	3.24	94.11	6,900	3.23	94.08
70-74	5,183	2.51	96.66	5,290	2.52	96.63	5,376	2.51	96.59
75-79	3,588	1.74	98.40	3,675	1.75	98.38	3,764	1.76	98.35
80-84	2,072	1.01	99.41	2,116	1.01	99.39	2,158	1.01	99.36
85 + over	1,243	.60	100.01	1,296	.62	100.01	1,351	.63	99.99
Error due to rounding			(-.01)			(-.01)			(+.01)



TABLE II

(1) POPULATION 1900 to 1970 (in millions) (2) ABSOLUTE CHANGE  
(3) CHANGE AS A PERCENT OF PREVIOUS TOTAL

Year	(1)	(2)	(3)	Year	(1)	(2)	(3)
1900	76,094			1936	128,181		.64
1901	77,585	1,491	1.96	1937	128,961	819	.61
1902	79,160	3,066	2.03	1938	129,969	1,008	.78
1903	80,632	1,472	1.86	1939	131,028	1,059	.81
1904	82,165	1,533	1.90	1940	132,122	1,094	.83
1905	83,820	1,655	2.01	1941	133,402	1,280	.97
1906	85,437	1,617	1.93	1942	134,860	1,458	1.09
1907	87,000	1,563	1.81	1943	136,739	1,879	1.39
1908	88,709	1,709	1.95	1944	138,297	1,658	1.21
1909	90,492	1,783	2.01	1945	139,928	1,531	1.11
1910	92,407	1,915	2.11	1946	141,389	1,461	1.04
1911	93,868	1,461	1.58	1947	144,126	2,737	2.13
1912	95,331	1,463	1.56	1948	146,631	2,505	1.74
1913	97,227	1,896	1.99	1949	149,188	2,557	1.74
1914	99,118	1,891	1.95	1950	151,683	2,495	1.67
1915	100,549	1,431	1.44	1951	154,360	2,677	1.77
1916	101,966	1,417	1.47	1952	157,028	2,668	1.73
1917	103,266	1,300	1.27	1953	159,636	2,608	1.66
1918	103,203	(-63)	-0-	1954	162,417	2,781	1.74
1919	104,512	1,309	1.26	1955	165,170	2,853	1.76
1920	106,466	1,954	1.87	1956	168,176	2,906	1.76
1921	108,541	2,075	1.95	1957	171,198	3,022	1.80
1922	110,055	1,514	1.39	1958	174,054	2,856	1.67
1923	111,950	1,895	1.72	1959	177,103	3,049	1.75
1924	114,113	2,163	1.93	1960	180,116	3,013	1.67
1925	115,832	1,719	1.51	1961	182,750	2,634	1.44
1926	117,399	1,567	1.35	1962	186,734	3,984	2.13
1927	119,038	1,639	1.40	1963	189,498	2,764	1.46
1928	120,501	1,463	1.01	1964	192,595	3,097	1.61
1929	121,770	1,269	1.05	1965	195,747	3,152	1.61
1930	123,188	1,418	1.16	1966	199,210	3,463	1.74
1931	124,149	961	.78	1967	202,673	3,463	1.71
1932	124,949	800	.64	1968	206,136	3,463	1.68
1933	125,690	741	.59	1969	209,609	3,473	1.66
1934	126,485	795	.63	1970	213,810	4,201	1.96
1935	127,362	877	.69				





**TABLE III**  
**Absolute and Percentage Change in the Population by Age Group**  
**From 1960 to 1970; 1960 to 1965**

	<u>Total</u>	<u>Under 5</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30-34</u>	<u>35-39</u>	<u>40-44</u>	<u>45-45</u>
1960 to 1965	15,631 109%	1,252 106%	1,678 109%	1,199 112%	3,861 129%	2,191 119%	513 105%	-810 93%	-520 96%	825 107%	339 103%
1960 to 1970	33,694 119%	4,199 121%	2,930 115%	3,676 121%	5,856 144%	6,032 153%	2,694 125%	-296 98%	-1,316 89%	323 103%	1,164 111%
	<u>50-54</u>	<u>55-59</u>	<u>60-64</u>	<u>65-69</u>	<u>70-74</u>	<u>75-79</u>	<u>80-84</u>	<u>85 + over</u>			
1960 to 1965	945 110%	968 112%	521 107%	518 109%	509 112%	292 110%	343 121%	397 122%			
1960 to 1970	1,296 113%	1,898 123%	1,457 120%	1,023 109%	993 112%	729 110%	561 121%	464 152%			

**Table IV**  
**Annual Estimates and Projections of the Population in Selected Age Groups: 1960-1970.**

	<u>Elementary School Years 5 to 15</u>	<u>High School Years 14 to 17</u>	<u>College Years 18 to 21</u>
1960	33,607	11,204	9,605
1961	33,838	12,107	10,231
1962	34,488	12,900	10,691
1963	35,105	13,710	11,049
1964	35,779	14,482	11,258
1965	36,377	14,332	12,153
1966	36,934	14,525	12,942
1967	37,426	14,821	13,751
1968	37,879	15,226	14,528
1969	38,347	15,570	14,378
1970	38,929	15,875	14,573



## Appendix I

## ASSUMPTIONS UPON WHICH PROJECTIONS ARE BASED

**ASSUMPTIONS ABOUT NET IMMIGRATION** In a broad sense, the history of population growth in this country is the story of immigration. Recently, however, the volume of civilian immigration to the United States has been limited by law and net immigration has played a relatively minor role as a component of population change. Realizing this upper legal limit and knowing the immigration statistics of the recent past, an arbitrary allowance of +300,000 entrants per year has been used. This amount is roughly equal to the average annual net number that arrived during the period 1951-1956. (For a more detailed analysis about the probable validity of this figure, see the Bureau of the Census' Illustrative Projections of the Population of the United States, by Age and Sex, 1960 to 1980, page 13)

**ASSUMPTIONS ABOUT MORTALITY** Many projections based on varying assumptions have been made concerning future mortality rates. The one used here, believed to be the most realistic of the various possibilities, represents an average of the "high" and "low" projections prepared in the Division of the Actuary, Social Security Administration. U. S. Dept. of HEW assumes a slight reduction in death rates for all age groups based on recent trends and evaluation of their underlying causes. (A detailed description of the method used is given in the Social Security Administration's report, Illustrative United States Population Projections, prepared by T.N.E. Greville, Actuarial Study #46, May, 1957.) Because of the expectation of continuing advances of medical science and allied fields, both the "high" and "low" projections contemplate future decline in mortality rates. The possibility of increasing or even constant mortality rates seems inconsistent with the facts and has not been considered here. The difference in the projected population levels for 1970, using both the "high" and "low" mortality assumptions, is in the neighborhood of 2 million persons, and more than half of the difference is in the age 65 years and over. Within this range the "average" that has been used seems to be not only the most relevant base, but also is the closest to known data of the last decade.

**ASSUMPTIONS ABOUT BIRTH** In normal peacetime years, both immigration and mortality statistics have shown a high degree of consistency. Net immigration has been around +300,000 per year and mortality rates have shown a slow decline. But the birth rates of recent decades have shown wide fluctuations and fertility estimates are the least certain component of any population projection. (It should be noted, however, that in our projection from 1960 to 1970 only the population of ages 0 to 10 is affected by the birth rate. The population above 10 years of age exists at the present time and, therefore, is affected only by changes in mortality and net immigration. These, as we have noted above, have varied only within relatively narrow limits.)

Because the causes of birth rate changes are, as yet, largely unknown and, therefore, unquantifiable, the assumptions underlying our estimates become extremely important. The method that this study employs is based on an argument developed by the Bureau of the Census and a brief statement of their procedure follows.

In Illustrative Projections...1960 to 1980 the Bureau of the Census sidesteps the problem of uncertainty by using four sets of fertility projections, each based on a different set of assumptions. They are --

Series I, which assumes that fertility will average 10 percent above the 1955-57 levels throughout the projection period.

Series II, which assumes that fertility will remain constant at the 1955-57 level.

Series III, which assumes that fertility will decline from the 1955-57 level to the 1949-51 level by 1965-70, and then remain at that level until 1975-80.

Series IV, which assumes that fertility will decline from the 1955-57 level to the 1942-44 level by 1965-70, and then remain at that level until 1975-80.



Essentially the Bureau's procedure uses the birth rate 1955-57 and mathematically inflates or deflates this rate by the appropriate factor based on the assumptions. Series III and IV, for example, imply some decline in the birth rate to about 1970. Series I, on the other hand, implies birth rates as high as those prevailing in the early decades of this century. Series II ends up by using an overall growth factor of about 3%. Because of the uncertainty of future birth rates and in view of the above range of assumptions with which to project birth trends, it seems reasonable to assume that the trends of the recent past will continue into the next decade. Therefore Series II has been used. This reasoning has led to Series II being used in pamphlets printed by various government agencies, the National Planning Association (a non-profit organization supported by business), and two other industrial organizations.







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